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1. An interposer for electrically coupling a semiconductive device to an electrical apparatus, the interposer comprising:

a substrate comprised of an electrically insulating, ceramic material; and
an electrical conductor on the substrate, the electrical conductor having a receiving end for connecting to a semiconductive device and a terminal end for connecting to an electrical apparatus.

2. An interposer as recited in claim 1, wherein the substrate comprises a substantially planar sheet.

3. An interposer as recited in claim 1, wherein the substrate comprises a substantially homogenous material.

4. An interposer as recited in claim 1, wherein the receiving end protrudes upwardly with respect to the substrate.

5. An interposer as recited in claim 1, wherein the receiving end is disposed within a recess in the substrate.

6. An interposer as recited in claim 1, wherein the substrate comprises a material selected from the group consisting of glass, alumina, glass ceramic, nonmetallic nitride, aluminum nitride, nonmetallic carbide, and mixtures and derivatives thereof.

7. An interposer as recited in claim 1, wherein the substrate comprises boron nitride.

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1 8. An interposer as recited in claim 1, wherein the interposer further comprises
2 an electrically insulating layer on a portion of the conductor between the receiving end and
3 the terminal end.

4 9. An interposer as recited in claim 8, wherein the electrically insulating layer
5 comprises a thermally conductive material.
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10. An interposer for electrically coupling a semiconductor device to an electrical apparatus, the interposer comprising:
a substantially homogeneous, substantially planar sheet comprised of an electrically insulating, inorganic ceramic material; and
an electrical conductor on the sheet, the electrical conductor having a receiving end for connecting to a semiconductor device and a terminal end for connecting to an electrical apparatus, such that the semiconductor device is electrically coupled to the electrical apparatus when the semiconductor device is connected to the receiving end of the electrical conductor and the terminal end of the electrical conductor is connected to the electrical apparatus.

11. An interposer as recited in claim 10, wherein the substrate consists essentially of alumina.

12. An interposer as recited in claim 10, wherein the substrate consists essentially of a glass ceramic material.

13. An interposer for electrically coupling a semiconductive device to an electrical apparatus, the interposer comprising:

a substantially homogeneous, substantially planar sheet composed of an electrically insulating material selected from the group consisting of glass ceramics, devitrified ceramics, vitro ceramics, alumina, single oxide ceramics, and mixed oxide ceramics, and mixtures and derivatives thereof; and

an electrical conductor on the sheet, the electrical conductor having a receiving end for connecting to a semiconductive device and a terminal end for connecting to an electrical apparatus, such that the semiconductive device is electrically coupled to the electrical apparatus when the semiconductive device is connected to the receiving end of the electrical conductor and the terminal end of the electrical conductor is connected to the electrical apparatus.

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1 14. An interposer for electrically coupling a semiconductive device to an
2 electrical apparatus, the interposer comprising:

3 a substantially homogeneous, substantially planar sheet composed of an
4 electrically insulating material selected from the group consisting of alumina,
5 alumina with silica, alumina with silicates, alumina with derivatives of silicates, and
6 mixtures and derivatives thereof; and

7 an electrical conductor on the sheet, the electrical conductor having a
8 receiving end for connecting to a semiconductive device and a terminal end for
9 connecting to an electrical apparatus, such that the semiconductive device is
10 electrically coupled to the electrical apparatus when the semiconductive device is
11 connected to the receiving end of the electrical conductor and the terminal end of the
12 ~~electrical conductor is connected to the electrical apparatus.~~

15. An interposer for electrically coupling a semiconductive device to an electrical apparatus, the interposer comprising:

a substantially homogeneous, substantially planar sheet composed of an electrically insulating material selected from the group consisting of boron nitrides, aluminum nitrides, and mixtures and derivatives thereof; and

an electrical conductor on the sheet, the electrical conductor having a receiving end for connecting to a semiconductive device and a terminal end for connecting to an electrical apparatus, such that the semiconductive device is electrically coupled to the electrical apparatus when the semiconductive device is connected to the receiving end of the electrical conductor and the terminal end of the

~~electrical conductor is connected to the electrical apparatus.~~

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EXHIBIT 50

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1 16. An interposer for electrically coupling a semiconductive device to an
2 electrical apparatus, the interposer comprising:

3 a substantially homogeneous, substantially planar sheet composed of an
4 electrically insulating material selected from the group consisting of oxides of
5 silicon, silicate glass, and nucleated, substantially crystalline glass, and mixtures and
6 derivatives thereof; and

7 an electrical conductor on the sheet, the electrical conductor having a
8 receiving end for connecting to a semiconductive device and a terminal end for
9 connecting to an electrical apparatus, such that the semiconductive device is
10 electrically coupled to the electrical apparatus when the semiconductive device is
11 connected to the receiving end of the electrical conductor and the terminal end of the
12 ~~electrical conductor is connected to the electrical apparatus.~~
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- 1 17. A system for electrically coupling a semiconductive device to an electrical
2 apparatus, the system comprising:
3 an interposer, the interposer comprising:
4 a substrate comprised of an electrically insulating ceramic
5 material; and
6 a plurality of electrical conductors on the substrate, each
7 electrical conductor having a receiving end for connecting to a
8 semiconductive device and a terminal end for connecting to an
9 electrical apparatus, such that electrical circuitry within the
10 semiconductive device is electrically coupled to the electrical
11 apparatus when the semiconductive device is connected to said
12 plurality of receiving ends of the electrical conductors and said
13 plurality of terminal ends of the electrical conductors are connected
14 to the electrical apparatus; and
15 a connector for holding the semiconductive device stationary relative to the
16 interposer.
- 17 18. A system as recited in claim 17, wherein the connector connects the
18 semiconductive device to the interposer such that a portion of the semiconductive device is
19 exposed to the atmosphere to thereby dissipate heat to the atmosphere.
- 20 19. A system as recited in claim 17, wherein the connector removably connects
21 the semiconductive device to the interposer.
- 22 20. A system as recited in claim 17, wherein the connector comprises a resilient
23 biasing clip.
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21. A system as recited in claim 17, wherein the connector is composed of a metal material.
22. A system as recited in claim 17, wherein the connector comprises an adhesive.
23. A system as recited in claim 17, wherein at least one of said receiving ends projects from the substrate.
24. A system as recited in claim 17, wherein at least one of said receiving ends is disposed within a recess in the substrate.

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- 1 25. A system for testing a semiconductive device, the system comprising:
- 2 an electrical testing apparatus;
- 3 a semiconductive device having an electrical circuitry therein electrically
- 4 connected to an electrical lead projecting therefrom;
- 5 an interposer, the interposer comprising:
- 6 a substrate comprised of an electrically insulating material
- 7 selected from the group consisting of glass, alumina, glass ceramic,
- 8 nonmetallic nitride, aluminum nitride, nonmetallic carbide, and
- 9 mixtures and derivatives thereof; and
- 10 an electrical conductor on the substrate, the electrical
- 11 conductor having a receiving end for connecting to the electrical lead
- 12 of the semiconductive device and a terminal end for connecting to the
- 13 electrical testing apparatus, whereby the semiconductive device is
- 14 electrically coupled to the electrical testing apparatus when the
- 15 electrical lead of the semiconductive device is in contact with the
- 16 receiving end of the electrical conductor and the terminal end of the
- 17 electrical conductor is in electrical communication with the electrical
- 18 testing apparatus.
- 19
- 20 26. The system as defined in Claim 25, further comprising:
- 21 a connector for biasing the electrical lead of the semiconductive device
- 22 towards and in contact with the receiving end of the electrical conductor, the
- 23 connector being composed of copper and alloys thereof.
- 24
- 25 27. The system as defined in Claim 26, wherein the connector has a coating
- 26 thereon composed of an electrically insulating material.

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1 28. A method for manufacturing an interposer for electrically coupling a
2 semiconductor device to an electrical apparatus, comprising:
3 providing a substrate composed of an electrically insulating material selected
4 from the group consisting of glass, alumina, glass ceramic, nonmetallic nitride,
5 aluminum nitride, nonmetallic carbide, and mixtures and derivatives thereof;
6 forming a plurality of recesses in the substrate; and
7 forming a plurality of electrical conductors on the substrate, each electrical
8 conductor having a receiving end for connecting to a semiconductor device and a
9 terminal end for connecting to an electrical apparatus, such that the semiconductor
10 device is electrically coupled to the electrical apparatus when the semiconductor
11 device is connected to the receiving ends and the terminal ends are connected to the
12 electrical apparatus, each receiving end being within one recess of said plurality of
13 recesses.

14
15 29. A method as recited in claim 28, further comprising forming an electrically
16 insulating material on each said electrical conductor between the receiving end thereof and
17 the terminal end thereof.
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- 1 30. A method for testing a semiconductive device, comprising:
- 2 providing an electrical testing apparatus;
- 3 providing a container that contains a semiconductor device having electrical
- 4 circuitry, the electrical circuitry being electrically connected to an electrical lead
- 5 projecting out of the container;
- 6 providing an interposer comprising:
- 7 a substrate composed of an electrically insulating ceramic
- 8 material, and
- 9 an electrical conductor on the substrate, the electrical
- 10 conductor having a receiving end and a terminal end;
- 11 connecting the receiving end of the electrical conductor to the electrical lead
- 12 of the semiconductive device;
- 13 connecting the terminal end of the electrical conductor to the electrical
- 14 testing apparatus such that the electrical circuitry of the semiconductive device is in
- 15 electrical communication with the electrical testing apparatus; and
- 16 performing an electrical test upon the electrical circuitry of the
- 17 semiconductive device with the electrical testing apparatus.
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- 1 31. A method for testing a semiconductive device, comprising:
2 providing an electrical testing apparatus;
3 providing a container that contains a semiconductor device having electrical
4 circuitry, the electrical circuitry being electrically connected to a plurality of electrical
5 leads projecting out of the container;
6 providing an interposer comprising:
7 a substrate composed of an electrically insulating ceramic
8 material, and
9 a plurality of electrical conductors on the substrate, each
10 electrical conductor having a receiving end and a terminal end;
11 connecting the receiving end of each electrical conductor to an electrical lead
12 of said plurality of the electrical leads;
13 connecting each terminal end of the plurality of electrical conductors to the
14 electrical testing apparatus such that the electrical circuitry of the semiconductive
15 device is in electrical communication with the electrical testing apparatus; and
16 performing an electrical test upon the electrical circuitry of the
17 semiconductive device with the electrical testing apparatus.
18

32. A method for testing a semiconductive device, comprising:

providing an electrical testing apparatus;

providing a semiconductive device having an electrical circuitry therein electrically connected to an electrical lead projecting therefrom;

providing an interposer comprising:

a substrate composed of an electrically insulating material selected from the group consisting of glass, alumina, glass ceramic, nonmetallic nitride, aluminum nitride, nonmetallic carbide, and mixtures and derivatives thereof; and

an electrical conductor on the substrate, the electrical

conductor having a receiving end and a terminal end;

connecting the receiving end of the electrical conductor to the electrical lead of the semiconductive device;

connecting the terminal end of the electrical conductor to the electrical testing apparatus such that the electrical circuitry of the semiconductive device is in electrical communication with the electrical testing apparatus; and

performing an electrical test upon the electrical circuitry of the semiconductive device with the electrical testing apparatus.

33. A method as defined in Claims 32, wherein connecting the receiving end of the electrical conductor to the electrical lead of the semiconductive device comprises:

providing a connector for holding the interposer stationary relative to the semiconductive device, the connector covering a portion of the semiconductive device and another portion of the semiconductive device being exposed to the ambient so as to dissipate heat thereto.

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34. A method as defined in Claim 33, wherein the connector for biases the receiving end of the electrical conductor to the electrical lead of the semiconductive device.

35. A method as defined in Claim 33, wherein the connector is composed of a ceramic material.

36. A method as defined in Claim 33, wherein the connector comprises a resilient biasing clip.

37. A method as defined in Claim 33, wherein the connector is composed of metal material.

38. A method as defined in Claim 32, wherein performing an electrical test upon the electrical circuitry of the semiconductive device with the electrical testing apparatus comprises:

- the electrical testing apparatus storing information on the electrical circuitry of the semiconductive device; and
- the electrical testing apparatus retrieving the information from the electrical circuitry of the semiconductive device.

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